

# Alamitos Bay/Los Cerritos Channel Watershed Management Area

## Coordinated Integrated Monitoring Program

**Submitted to:**

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## List of Abbreviations

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AB/LCC	Alamitos Bay/Los Cerritos Channel
BPA	Basin Plan Amendment
BMP	Best Management Practice
CIMP	Coordinated Integrated Monitoring Program
CLTMP	Colorado Lagoon TMDL Monitoring Plan
DDT	Dichlorodiphenyltrichloroethane
EPA	Environmental Protection Agency
GIS	Geographic Information System
HRU	Hydrologic Response Unit
IC/ID	Illicit Connections and Illicit Discharges
LACFCD	Los Angeles County Flood Control District
LARWCQB	Los Angeles Regional Water Quality Control Board
LCCWG	Los Cerritos Channel Watershed Group
LID	Low Impact Development
MAL	Municipal Action Level
MCM	Minimum Control Measure
MS4	Municipal Separate Storm Sewer System
MRP	Monitoring and Reporting Program
N	Nitrogen
NPDES	National Pollutant Discharge Elimination System
NSW	Non Stormwater
PCBs	Polychlorinated Biphenyls
PIPP	Public Information and Participation Program
QA/QC	Quality Assurance/Quality Control
RAA	Reasonable Assurance Analysis
RMC	Regional Monitoring Coalition
RWL	Receiving Water Limitations
SMC	Southern California Stormwater Monitoring Coalition
TMDL	Total Maximum Daily Load
TN	Total Nitrogen
TP	Total Phosphorus
USEPA	United State Environmental Protection Agency
WLA	Waste Load Allocation
WMA	Watershed Management Area
WQBELs	Water Quality Based Effluent Limitations

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# **Section 1. Introduction**

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## **1.1 BACKGROUND**

The Alamos Bay/Los Cerritos Channel (AB/LCC) Coordinated Integrated Monitoring Program (CIMP) is a collaborative effort between the County of Los Angeles (County) and the Los Angeles County Flood Control District (LACFCD). The geographic scope of this CIMP includes the County's jurisdiction and certain LACFCD infrastructure within the 37.5 square-mile AB/LCC Watershed Management Area (WMA). In particular the following areas are covered in this CIMP:

- 95-acre County Island
- LACFCD's infrastructure within the County Island, the Los Cerritos Channel Estuary watershed and the Alamos Bay watershed.

As shown in Figure 1, the County and the LACFCD, collectively the Alamos Bay/Los Cerritos Channel Group (AB/LCC Group), make up a very small portion of the overall WMA. The AB/LCC CIMP is being submitted to meet the Monitoring and Reporting Program requirements outlined in Attachment E of the National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Permit No. R4-2012-0178 (Permit). The Permit was adopted on November 8, 2012 and became effective December 28, 2012.

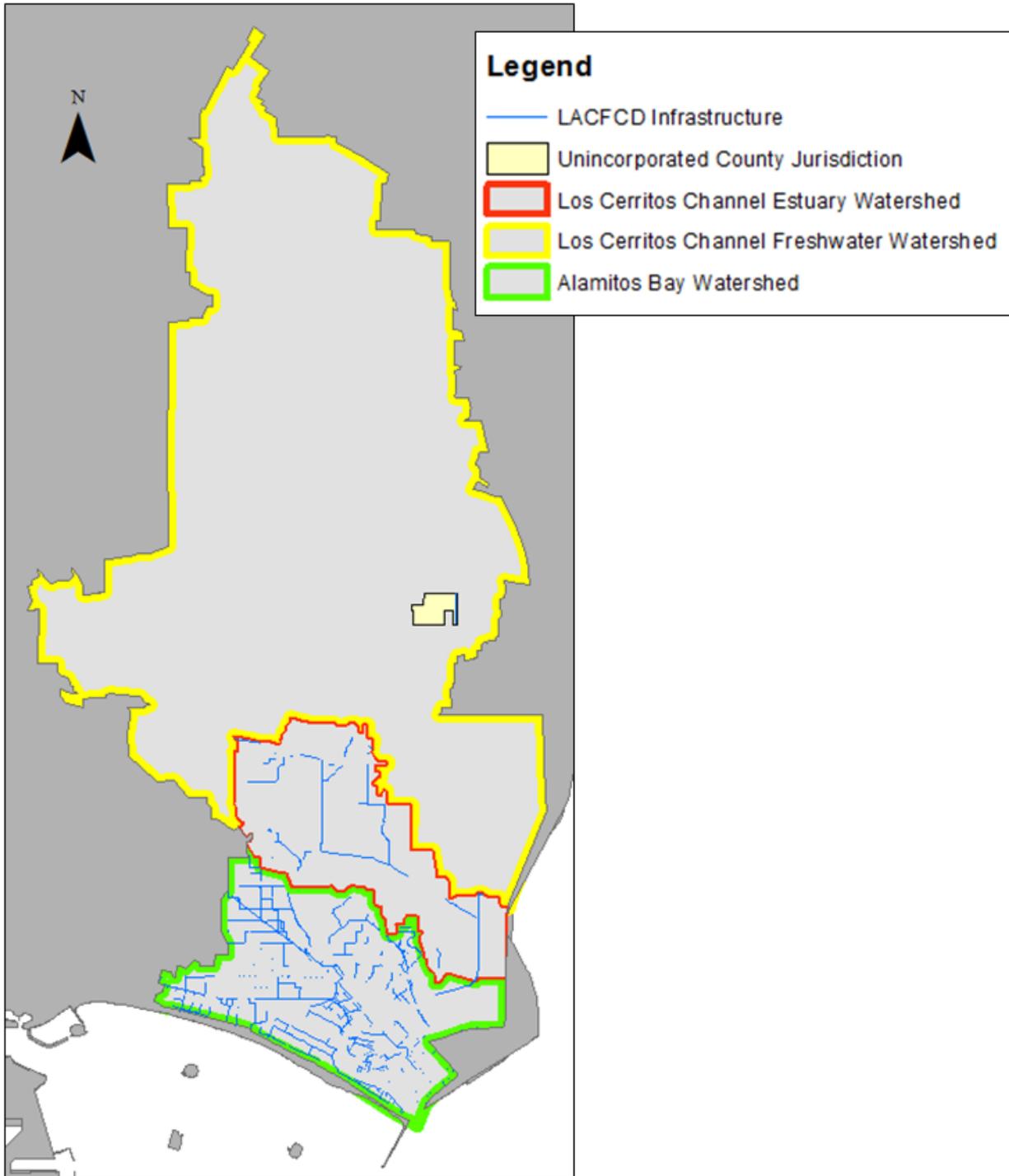
## **1.2 OBJECTIVE**

Section II of Attachment E of the Permit states the primary objectives of the Monitoring Program are to:

- Assess the chemical, physical, and biological impacts of discharges from the MS4 on receiving waters.
- Assess compliance with receiving water limitations and water quality-based effluent limitations (WQBELs) established to implement Total Maximum Daily Load (TMDL) wet weather and dry weather wasteload allocations (WLAs).
- Characterize pollutant loads in MS4 discharges.
- Identify sources of pollutants in MS4 discharges.
- Measure and improve the effectiveness of pollutant controls implemented under the Permit

## **1.3 APPROACH**

This CIMP utilizes existing monitoring efforts in the AB/LCC WMA and proposes additional efforts to meet the objectives of the Permit. Additionally, this CIMP maximizes coordination opportunities with other CIMPs in the AB/LCC WMA.



**Figure 1: Three Subwatersheds within Alamos Bay/LCC Group Limits**

## 1.4 AB/LCC WATERSHED MANAGEMENT AREA

The Alamitos Bay/Los Cerritos Channel Watershed Management Area (AB/LCC WMA) is located in southern Los Angeles County and has a drainage area of approximately 37.5 square miles. The AB/LCC WMA encompasses the Los Cerritos Channel freshwater watershed, the Los Cerritos Channel estuary watershed and the Alamitos Bay watershed. These watersheds and the areas covered in this CIMP are shown in Figure 1. It should be noted that within the AB/LCC WMA there are multiple existing monitoring programs as well as parallel CIMP efforts. The AB/LCC Group has made significant efforts to coordinate this CIMP with other programs in the AB/LCC WMA.

Within the AB/LCC WMA, there is a 95 acre unincorporated area of the County of Los Angeles (County Island). Additionally, the LACFCD operates and maintains storm drains and other appurtenant drainage infrastructure within the AB/LCC WMA. This drainage infrastructure serves as a conveyance for waters within the watershed and the LACFCD has no jurisdiction over the land uses within the watershed that generate the pollutants of concern. Further description of the LACFCD and its functions is provided in Appendix A.

### 1.4.1 Los Cerritos Channel Freshwater Watershed

The Los Cerritos Channel freshwater watershed has a total drainage area of approximately 27.7 square miles. The Los Cerritos Channel freshwater watershed drains to a concrete lined channel which is operated and maintained by the LACFCD. Generally, the downstream limit of the freshwater watershed is considered to be just south of Atherton Street as shown in Figure 2. It should be noted that high tides can push tidal surges upstream of Atherton Street. The drainage area of the freshwater watershed is within the jurisdiction of the County, CALTRANS and several cities including Bellflower, Cerritos, Downey, Lakewood, Long Beach, Paramount and Signal Hill.



**Figure 2: Los Cerritos Channel Freshwater/Estuary Transition**

### 1.4.2 Los Cerritos Channel Estuary Watershed

The Los Cerritos Channel Estuary (Estuary) is approximately 1.5 miles long and extends from just south of Atherton St. to the Alamitos Bay. The Estuary is under tidal influence (Figure 3) and is characterized by a trapezoidal geometry with rip-rap sides and a natural bottom. The drainage area directly tributary to the Estuary is approximately 4.1 square miles. The Estuary is under the jurisdiction of the LACFCD while the drainage area consists entirely of the City of Long Beach and CALTRANS.



Figure 3: Los Cerritos Channel Estuary

### 1.4.3 Alamitos Bay Watershed

The Alamitos Bay Watershed has a total drainage area of approximately 5.7 square miles. This area includes the Colorado Lagoon which is situated at the northwestern end of Alamitos Bay. The Colorado Lagoon subwatershed is approximately 1.8 square miles. Alamitos Bay and Colorado Lagoon are hydraulically connected via an underground culvert which connects Colorado Lagoon to the Marine Stadium portion of Alamitos Bay. The Alamitos Bay watershed's drainage area is completely within the jurisdiction of the City of Long Beach and CALTRANS.



Figure 4: Colorado Lagoon

#### 1.4.4 County Island

Within the AB/LCC WMA is the County Island is known as the “North Long Beach Island”. The County Island is landlocked by the City of Long Beach (Figure 5). The County Island is 95 acres (0.15 square miles) and is predominantly High-Density Single Family Residential Land Use.

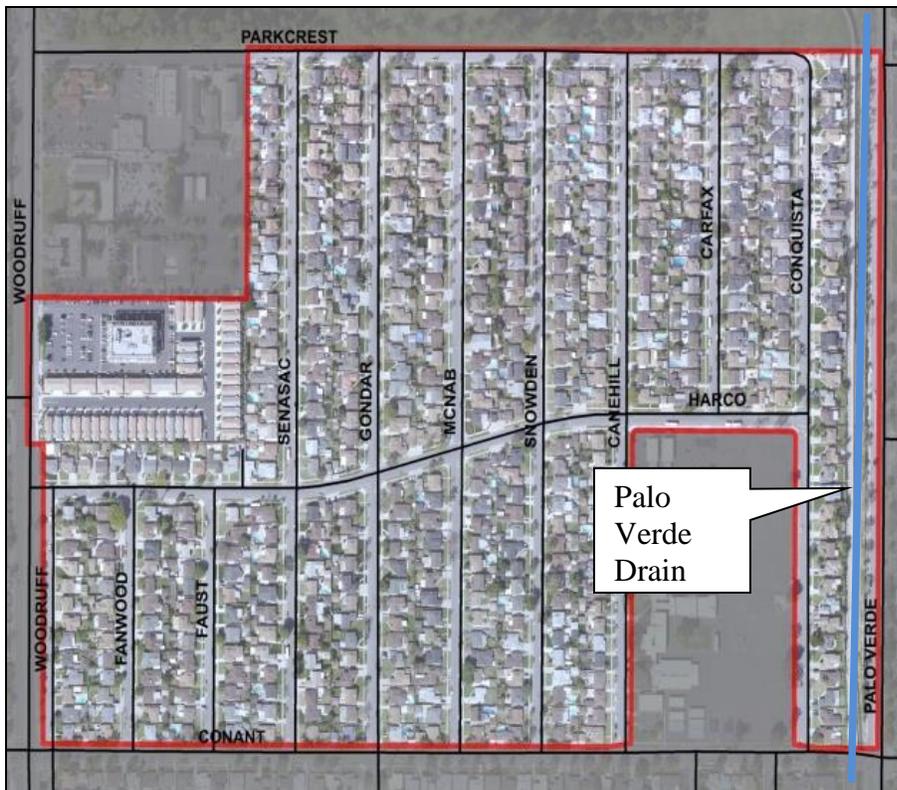


Figure 5: Unincorporated County Island

## **Section 2. Existing TMDLs and Monitoring Programs in the AB/LCC WMA**

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Within the AB/LCC WMA, there are 3 existing TMDLs which each require Monitoring and Reporting Programs.

### **2.1 LOS CERRITOS CHANNEL METALS TMDL**

The Total Maximum Daily Load for Metals in Los Cerritos Channel (LCC Metals TMDL) was approved by the United States Environmental Protection Agency (USEPA) on March 17, 2010. The Metals TMDL was developed to address beneficial use impairments due to Copper, Zinc and Lead in the freshwater portion of the Los Cerritos Channel. The freshwater portion of Los Cerritos Channel has the existing beneficial use of Wildlife Habitat (WILD), the potential beneficial uses of Municipal and Domestic Supply (MUN), Water Contact Recreation (REC1) and the intermittent beneficial uses of Warm Freshwater Habitat (WARM), and Non-contact Water Recreation (REC2).

On June 6, 2013, the Los Angeles Regional Water Quality Control Board (LARWQCB) adopted a resolution which includes an Implementation Schedule for the LCC Metals TMDL. The Implementation Schedule states that MS4 permittees shall submit a coordinated monitoring plan, which includes compliance and receiving water monitoring by September 30, 2015. A monitoring plan submitted pursuant to the NPDES Permit may be used by permittees to satisfy the TMDL monitoring requirements. The AB/LCC Group is submitting this CIMP to satisfy the coordinated monitoring plan requirements of the LCC Metals TMDL.

### **2.2 DOMINGUEZ CHANNEL TOXICS TMDL**

The Total Maximum Daily Load for Toxic Pollutants in Dominguez Channel and Greater Los Angeles and Long Beach Harbor Waters (DC Toxics TMDL) was adopted by the LARWQCB on May 5, 2011. The DC Toxics TMDL became effective on March 23, 2012. The goal of the TMDL is to protect and restore fish tissue, water and sediment quality in Dominguez Channel and Greater Los Angeles and Long Beach Harbor waters by remediating contaminated sediment and controlling the sediment loading and accumulation of contaminated sediment in the Harbors.

The County and the LACFCD are both listed as responsible parties for the Greater Harbors waterbody. The DC Toxics TMDL states that “The Greater Los Angeles and Long Beach Harbors responsible parties are each individually responsible for conducting water, sediment, and fish tissue monitoring. However, they are encouraged to collaborate or coordinate their efforts to avoid duplication and reduce associated costs” (DC Toxics TMDL, Basin Plan Amendment pg. 27). Accordingly, both County and LACFCD are participating in the Greater Harbors Regional Monitoring Coalition (RMC). More information can be found in Section 4.3.2.

As recognized by the footnote in Attachment K-7 of the Permit, the County and the LACFCD have entered into an Amended Consent Decree with the United States and the State of California, including the LARWQCB, pursuant to which the LARWQCB has released the County and the LACFCD from responsibility for Toxic pollutants in the Dominguez Channel and the Greater Harbors. Accordingly, no inference should be drawn from the submission of this CIMP or from any action or implementation taken pursuant to it that the County or the LACFCD is obligated to

implement the DC Toxics TMDL, including this CIMP or any of the DC Toxics TMDL's other obligations or plans, or that the County or the LACFCD have waived any rights under the Amended Consent Decree.

### **2.3 COLORADO LAGOON TOXICS TMDL MONITORING PLAN**

The Colorado Lagoon Organochlorine Pesticides, PCBs, Sediment Toxicity, PAHs, and Metals TMDL (Colorado Lagoon Toxics TMDL) was adopted by the LARWQCB on October 1, 2009. The Colorado Lagoon Toxics TMDL was developed to restore fish tissue and sediment in Colorado Lagoon by controlling the contaminated sediment loading and accumulation of contaminated sediment in the lagoon. The Colorado Lagoon has beneficial uses of Commercial and Sport Fishing (COMM), Wildlife Habitat (WILD), Shellfish Harvesting (SHELL), Water Contact Recreation (REC1), Non-Contact water recreation (REC2) and the potential use of Warm Freshwater Habitat (WARM).

On December 17, 2012 the LACFCD along the City of Long Beach and CALTRANS submitted the Final Colorado Lagoon TMDL Monitoring Plan (CLTMP). More information on this monitoring program can be found in Section 4.3.3.

## 2.4 BENEFICIAL USES

Beneficial uses for waterbodies in the AB/LCC WMA are shown in Table 1.

**Table 1: Beneficial Uses in AB/LCC WMA**

Water Body	Beneficial Uses	
Los Cerritos Channel Freshwater Segment	Existing	Wildlife Habitat (WILD)
	Potential	Municipal and Domestic Supply (MUN) Water Contact Recreation (REC1)
	Intermittent	Warm Freshwater Habitat (WARM) Non-contact Water Recreation (REC2)
Los Cerritos Channel Estuary	Existing	Industrial Service Supply (IND) Navigation (NAV) Commercial and Sport Fishing (COMM) Estuarine Habitat (EST) Marine Habitat (MAR) Wildlife Habitat (WILD) Rare, Threatened, or Endangered Species (RARE) Migration of Aquatic Organisms (MIGR) Spawning, Reproduction, and/or Early Development (SPWN) Shellfish Harvesting (SHELL) Water Contact Recreation (REC1) Non-Contact water recreation (REC2)
Colorado Lagoon	Existing	Commercial and Sport Fishing (COMM) Wildlife Habitat (WILD) Shellfish Harvesting (SHELL) Water Contact Recreation (REC1) Non-Contact water recreation (REC2)
	Potential	Warm Freshwater Habitat (WARM)
Marine Stadium	Existing	Water Contact Recreation (REC1) Non-Contact water recreation (REC2)
Alamitos Bay	Existing	Water Contact Recreation (REC1) Non-Contact water recreation (REC2)

## **Section 3. Water Quality Priorities**

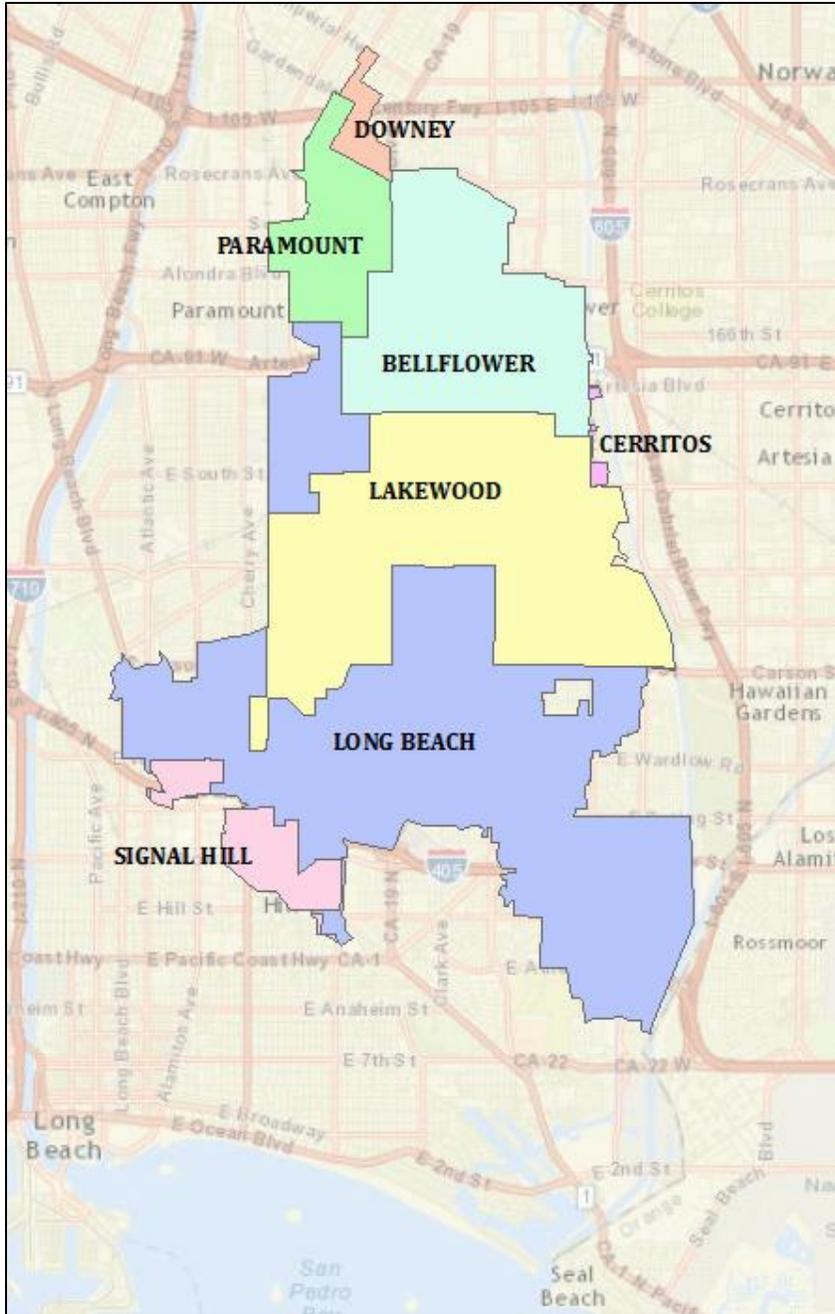
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### **3.1 OBJECTIVE**

Per Section VI.C.5 of the Permit, three categories of pollutants are identified to aid in the evaluation of existing water quality conditions. These classifications consist of:

- Category 1 (Highest Priority): Water body-pollutant combinations for which water quality-based effluent limitations and/or receiving water limitations are established in Part VI.E and Attachments L through R of this Order.
- Category 2 (High Priority): Pollutants for which data indicate water quality impairment in the receiving water according to the State's Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List (State Listing Policy) and for which MS4 discharges may be causing or contributing to the impairment.
- Category 3 (Medium Priority): Pollutants for which there are insufficient data to indicate water quality impairment in the receiving water according to the State's Listing Policy, but which exceed applicable receiving water limitations contained in this Order and for which MS4 discharges may be causing or contributing to the exceedance"

The AB/LCC group is coordinating portions of its monitoring efforts, where feasible with the Los Cerritos Channel Watershed Group (LCCWG). The LCCWG consists of the cities of Bellflower, Cerritos, Downey, Lakewood, Long Beach, Paramount and Signal Hill. Additionally, the LCCWG contains the LACFCD's infrastructure within these cities' jurisdiction. See Figure 6 for the geographical boundaries of the LCCWG.



**Figure 6: Los Cerritos Channel Watershed Group**

For consistency with the LCCWG, the AB/LCC Group has identified Low Priority Pollutants. These pollutants fall below the requirements of Category 3, however there has been at least one exceedance of these pollutants within the past 10 years. Consistent with the requirements of the Permit, existing TMDLs and the 303(d) list were used to determine Category 1 and 2 pollutants. Historic monitoring data collected from the Stearns Street Station (Figure 7 and Figure 8) was used to determine Category 3 and low priority pollutants. Table 2 lists the pollutants of concern for the freshwater portion of the Los Cerritos Channel. A detailed analysis of these pollutants of concern and their priority category can be found in the AB/LCC WMA WMP.

**Table 2: Water Quality Priorities for the Freshwater Portion of the Los Cerritos Channel**

Waterbody	Category 1 (Highest Priority)		Category 2 (High Priority) Pollutants	Category 3 (Medium Priority) Pollutants	Low Priority Pollutants
	Pollutant	TMDL			
Los Cerritos Channel	Copper (wet and dry)	LCC Metals	Ammonia	MBAS	Cadmium (wet)
	Lead	LCC Metals/DC Toxics	Bis(2ethylhexyl) phthalate (DEHP)	Enterococcus	Chlorpyrifos (wet)
	Zinc	LCC Metals/DC Toxics	Chlordane (Sediment)		Chromium (wet)
	DDT (fish tissue)	DC Toxics	Coliform Bacteria		Diazinon (wet and dry)
	PCBs (fish tissue)	DC Toxics	Trash		Dissolved Silver (wet)
	Chlordane (fish tissue)	DC Toxics	pH		
	PAHs (sediment)	DC Toxics			
	Toxicity (sediment)	DC Toxics			

## **Section 4. Receiving Water Monitoring**

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This CIMP utilizes existing monitoring efforts in the AB/LCC Watershed Management Area (WMA) and proposes additional efforts to meet the objectives of the Permit. The AB/LCC Group is providing a representative monitoring program which should characterize its discharge into the affected receiving waters.

### **4.1 OBJECTIVE**

Per Section II.E.1, Attachment E. of the MS4 Permit, the objective of receiving water monitoring includes:

- Determine whether the receiving water limitations are being achieved,
- Assess trends in pollutant concentrations over time, or during specified conditions,
- Determine whether the designated beneficial uses are fully supported as determined by water chemistry, as well as aquatic toxicity and bioassessment monitoring.

This CIMP distinguishes two types of receiving water monitoring, MS4 Receiving Water Sites and TMDL Receiving Water Sites (TMDL Sites).

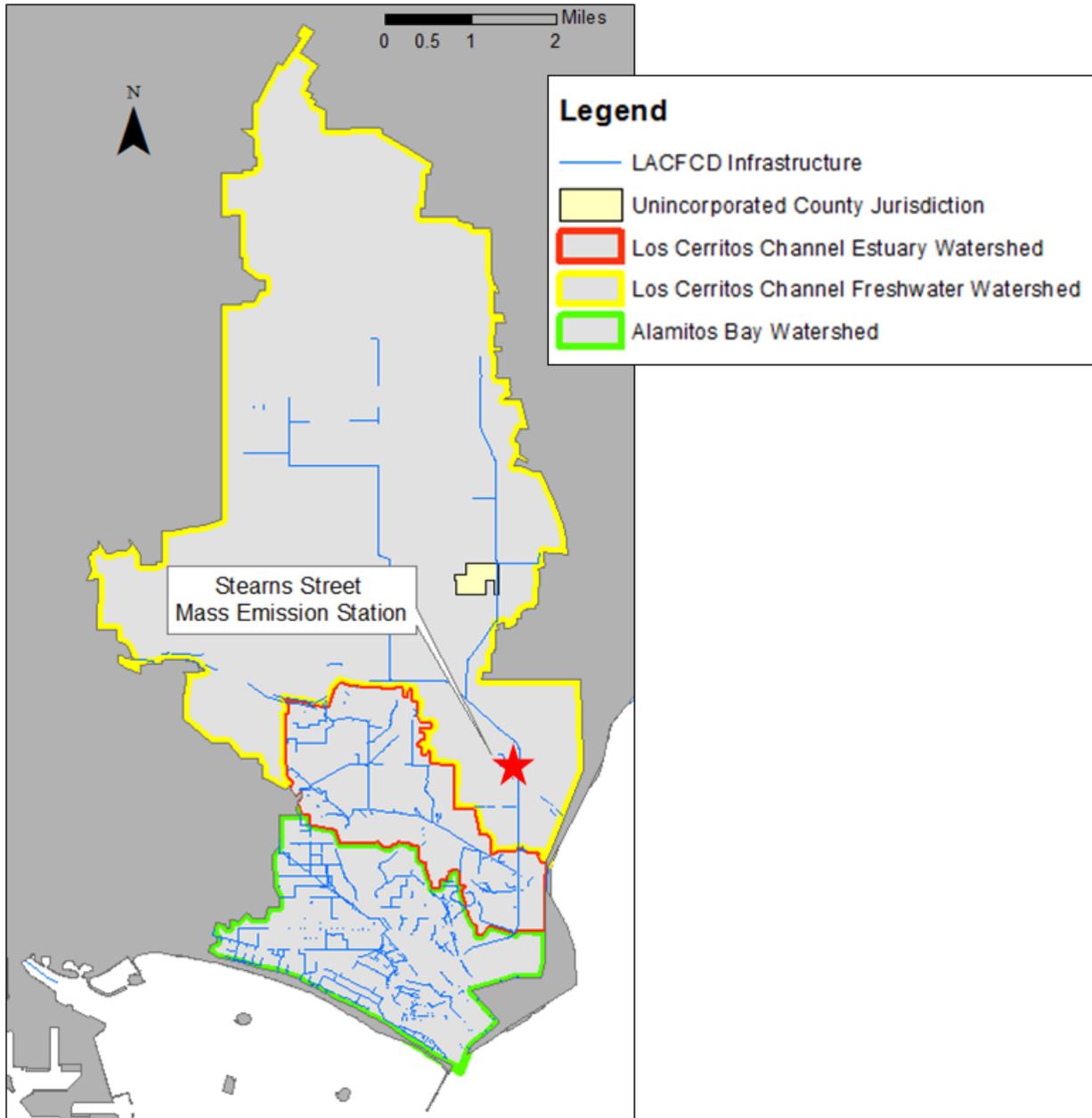
### **4.2 MS4 RECEIVING WATER SITE**

The AB/LCC Group intends to use the existing mass emission station at the Stearns Street crossing of Los Cerritos Channel as its MS4 Receiving Water Site. The City of Long Beach has maintained this mass emission station since 2000. Upon implementation of the LCCWG and the AB/LCC Group's CIMPs, the City of Long Beach will coordinate with other agencies for the operation and maintenance of the Stearns Street Site.



**Figure 7: Stearns Street Mass Emission Station**

The Stearns Street site is an ideal location as it assesses the overall health of the Los Cerritos Channel freshwater watershed. Additionally, since this is an existing site, implementation of monitoring at this site is expected to begin once CIMPs are approved by the LARWQCB.



**Figure 8: Stearns Street Mass Emission Station Location**

Details on constituents, methods and frequency of sampling to be conducted at the Stearns Street site can be found in the *Coordinated Integrated Monitoring Plan for the Los Cerritos Channel Watershed Monitoring Group*.

### 4.3 TMDL RECEIVING WATER SITES

There are three existing TMDLs in the AB/LCC WMA for which receiving water monitoring is required. The AB/LCC Group will utilize existing monitoring programs and coordinate with parallel CIMP efforts where feasible. The AB/LCC WMA Group may propose new monitoring locations based on results of the receiving water monitoring program through an adaptive process. The adaptive process is outlined in Figure 14.

#### 4.3.1 Los Cerritos Channel Metals TMDL

The LCC Metals TMDL provides WLAs for both wet and dry weather expressed as flow/volumes multiplied by applicable numeric concentration targets and daily pollutant loading thresholds, respectively. Table 3 and Table 4 summarize those WLAs. It is important to note that the LCC Metals TMDL is only applicable to the Los Cerritos Channel freshwater watershed (Figure 1).

**Table 3: Category 2: LCC Metals TMDL Wet Weather WLAs**

Constituent	WLA Daily Maximum (g/day)
Copper	$4.709 \times 10^{-6}$ x daily storm volume (L)
Lead	$26.852 \times 10^{-6}$ x daily storm volume (L)
Zinc	$46.027 \times 10^{-6}$ x daily storm volume (L)

**Table 4: Category 2: LCC Metals TMDL Dry Weather WLA**

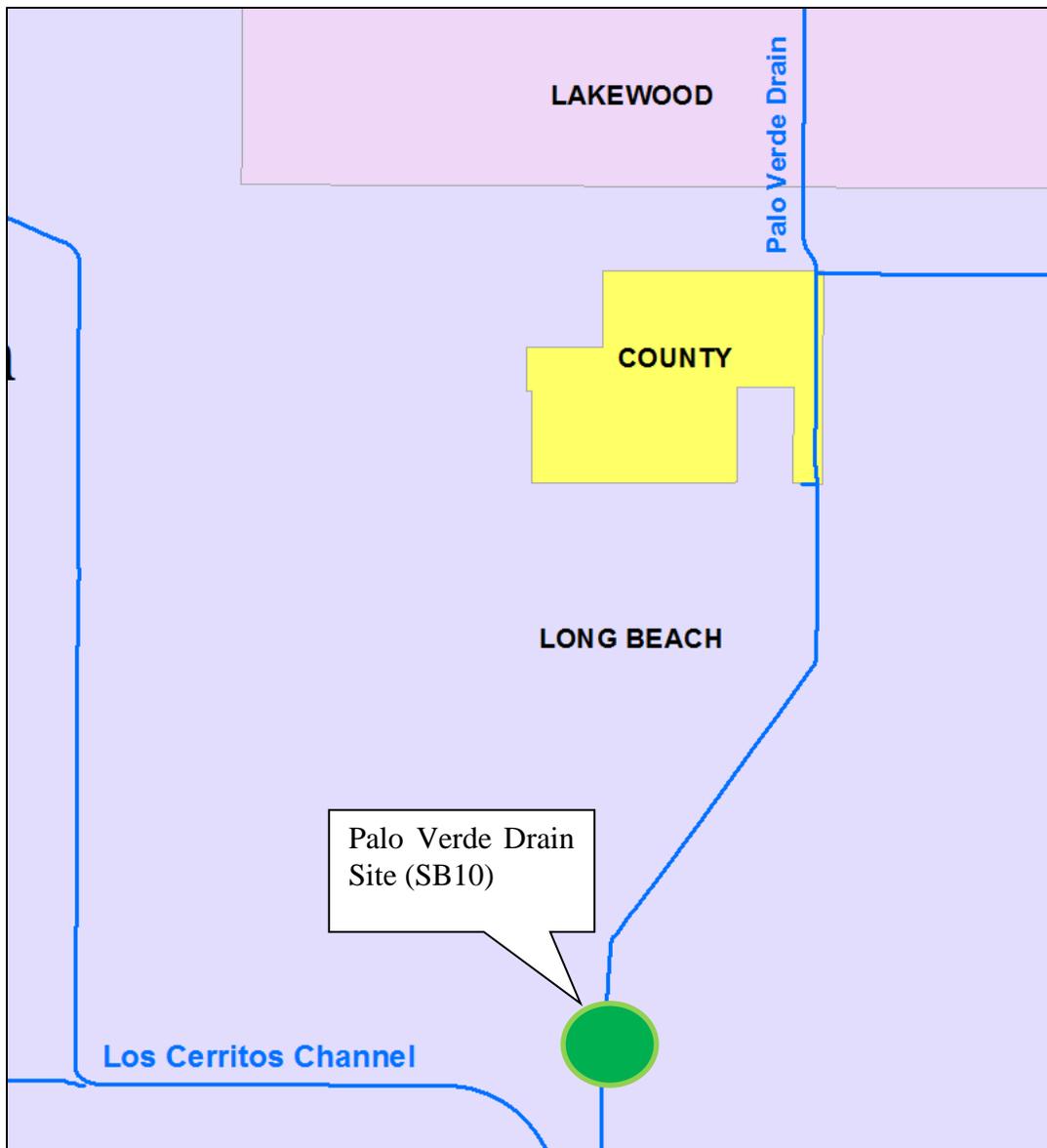
Constituent	WLA Daily Maximum (g/day)
Copper	67.2

The AB/LCC Group will collaborate its monitoring efforts with the LCCWG to determine the impact of Project 9 Unit 2 Line E (Palo Verde Drain) on the Los Cerritos Channel. Together, the AB/LCC Group and the LCCWG will monitor at the mouth of the Palo Verde Drain, upstream of any backwater effects from the Los Cerritos Channel. The discharge at this site also includes runoff from Cities of Cerritos, Lakewood and Long Beach. Accordingly, monitoring results at this location will be a representative of the cumulative contribution from all of these jurisdictions. A photo and the location of this site are shown in Figures 9 and 10, respectively. Details on constituents, methods and frequency of sampling can be found in the *Coordinated Integrated Monitoring Plan for the Los Cerritos Channel Watershed Monitoring Group*.



**Figure 9: Palo Verde Drain: LCC Metals TMDL Receiving Water Site**

Figure 9 shows the channel configuration looking upstream towards Spring Street. At this location Palo Verde Drain is a 24 foot by 8 foot rectangular concrete storm drain built in the early 1960s. The storm drain was constructed and is maintained by the LACFCD.



**Figure 10: Palo Verde Drain: LCC Metals TMDL Receiving Water Site**

The Palo Verde Drain subwatershed is approximately 5.3 square miles consisting of various land uses. The County Island makes up 2.8% of the Palo Verde Drain subwatershed. Table 5 shows the Hydrologic Response Units (HRU) for the Palo Verde Drain subwatershed and the County Island. The HRU is a combination of land use, soil hydrologic group and slope. The comparison in Table 5 shows that HRU breakdown of the County Island is very similar to that of the Palo Verde Drain subwatershed. Therefore, data obtained from the Palo Verde Drain Site will provide an indication of the County Island’s contribution to receiving water.

**Table 5: Hydraulic Response Unit Comparison**

	Palo Verde Drain Subwatershed		County Island	
	Area [Acres]	Percentage	Area [Acres]	Percentage
<b>High Density Single Family Residential</b>	1623.6	48.3%	63.2	67.0%
<b>Secondary Roads</b>	836.4	24.9%	25.2	26.7%
<b>Institutional</b>	242.2	7.2%	4.0	4.2%
<b>Commercial</b>	162.8	4.8%	2.0	2.1%
<b>Multifamily Residential</b>	235.9	7.0%		
<b>Low Density Single Family Residential Moderate Slope</b>	119.1	3.5%		
<b>Agriculture</b>	60.6	1.8%		
<b>Industrial</b>	43.6	1.3%		
<b>Transportation</b>	34.4	1.0%		
<b>Low Density Single Family Residential Steep Slope</b>	1.8	0.1%		
<b>Vacant</b>	1.0	0.0%		

### 4.3.2 DC Toxics TMDL

The DC Toxics TMDL states “The Greater Los Angeles and Long Beach Harbors responsible parties are each individually responsible for conducting water, sediment, and fish tissue monitoring. However, they are encouraged to collaborate or coordinate their efforts to avoid duplication and reduce associated costs. Dischargers interested in coordinated compliance monitoring shall submit a coordinated monitoring plan” (BPA pg. 27). Accordingly, the County and LACFCD are participants in the Greater Harbors RMC. The Greater Harbors RMC has prepared a comprehensive sampling and analysis program for the Greater Harbors which includes monitoring at 22 locations (Figure 11). For additional details, see the Coordinated Compliance Monitoring and Reporting Plan, Incorporating Quality Assurance Project Plan Components, Greater Los Angeles and Long Beach Harbor Waters submitted to the LARWQCB on February 25, 2014.



Figure 11: DC and Greater LA/LB Harbors Toxics TMDL Receiving Water Site

### **4.3.3 Colorado Lagoon Toxics TMDL**

On December 17, 2012, the LACFCD along with the City of Long Beach and CALTRANS, submitted the Final Colorado Lagoon TMDL Monitoring Plan (CLTMP). The goals of the CLTMP are:

- Determine compliance with organochlorine pesticides, PCBs, metals, and PAHs waste load and load allocations, and, when appropriate, request delisting of Colorado Lagoon from the 303(d) list of impaired water bodies.
- Monitor the effectiveness of implementation actions proposed by the responsible agencies on water and sediment quality, including potential impacts of redirecting discharges from the Termino Avenue Drain and from cleaning the culvert between Marine Stadium and Colorado Lagoon.
- Monitor contaminants in Lagoon sediments and determine if additional implementation actions are necessary to achieve the TMDL, and
- Implement the CLTMP in a manner consistent with other TMDL implementation plans and regulatory actions within the Colorado Lagoon watershed.

Monitoring per the approved CLTMP began in July 2013. The monitoring locations are shown in Figure 12. For more information, see the Final Colorado Lagoon TMDL Monitoring Plan (CLTMP) prepared for the City of Long Beach, LACFCD, CALTRANS dated December 17, 2012.



Figure 12: Colorado Lagoon Metals TMDL Receiving Water Sites

## **Section 5. Stormwater Outfall Monitoring**

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### **5.1 OBJECTIVE**

Per Section II.E.2, Attachment E of the MS4 Permit the objective of stormwater outfall monitoring includes:

- Determine the quality of a Permittee’s discharge relative to municipal action levels, as described in Attachment G of the MS4 Permit,
- Determine whether a Permittee’s discharge is in compliance with applicable storm water WQBELs derived from TMDL WLAs,
- Determine whether a Permittee’s discharge causes or contributes to an exceedance of receiving water limitations”

### **5.2 APPROACH**

To meet the stormwater outfall monitoring requirements, the AB/LCC group will collaborate with the LCCWG. The LCCWG’s CIMP proposes a “watershed segmentation approach” which monitors the major tributaries into the freshwater portion of the Los Cerritos Channel. Due to the unique characteristics of the Los Cerritos Channel Freshwater Watershed, assessing the contributions from major tributaries will efficiently direct a source investigation to determine the sources of pollutants in the watershed. The watershed segmentation approach combines elements of receiving water monitoring and stormwater outfall monitoring.

The Palo Verde Drain is a major tributary to the Los Cerritos Channel. Therefore a monitoring location at the mouth of the Palo Verde Drain will adequately determine the quality of the subwatershed’s discharge into the downstream receiving water. Accordingly, the previously identified site in the Palo Verde Drain Site (SB10) will serve as the stormwater outfall monitoring location for the AB/LCC Group. A detailed description of the Palo Verde Drain Site can be found in Section 4.3.1 of this CIMP.

## **Section 6. Non-Stormwater Outfall Monitoring Program**

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### **6.1 OBJECTIVE**

Per Attachment E of the MS4 Permit, the objective of non-stormwater outfall based monitoring is:

- Determine whether a Permittee's discharge is in compliance with applicable non-stormwater WQBELs derived from TMDL WLAs
- Determine whether a Permittee's discharge exceeds non-stormwater action levels, as described in Attachment G of the MS4 Permit
- Determine whether a Permittee's discharge contributes to or causes an exceedance of receiving water limitations,
- Assist a Permittee in identifying illicit discharges as described in Part VI.D.10 of the Permit.

### **6.2 OUTFALLS WITHIN AB/LCC GROUP'S JURISDICTION**

Within the AB/LC Group's jurisdiction, there are a total of 4 MS4 outfalls (Figure 13). These outfalls were initially identified utilizing available GIS databases and as-built drawings. A field check was then done to verify the location and size of the outfalls. A detailed description and photos of the four outfalls within the AB/LCC Group's jurisdiction is shown in Table 6. It should be noted that LCLE-035 and LCLE-041 primarily serve other jurisdiction's land areas and very little of the AB/LCC Group's jurisdiction drains to these outfalls.

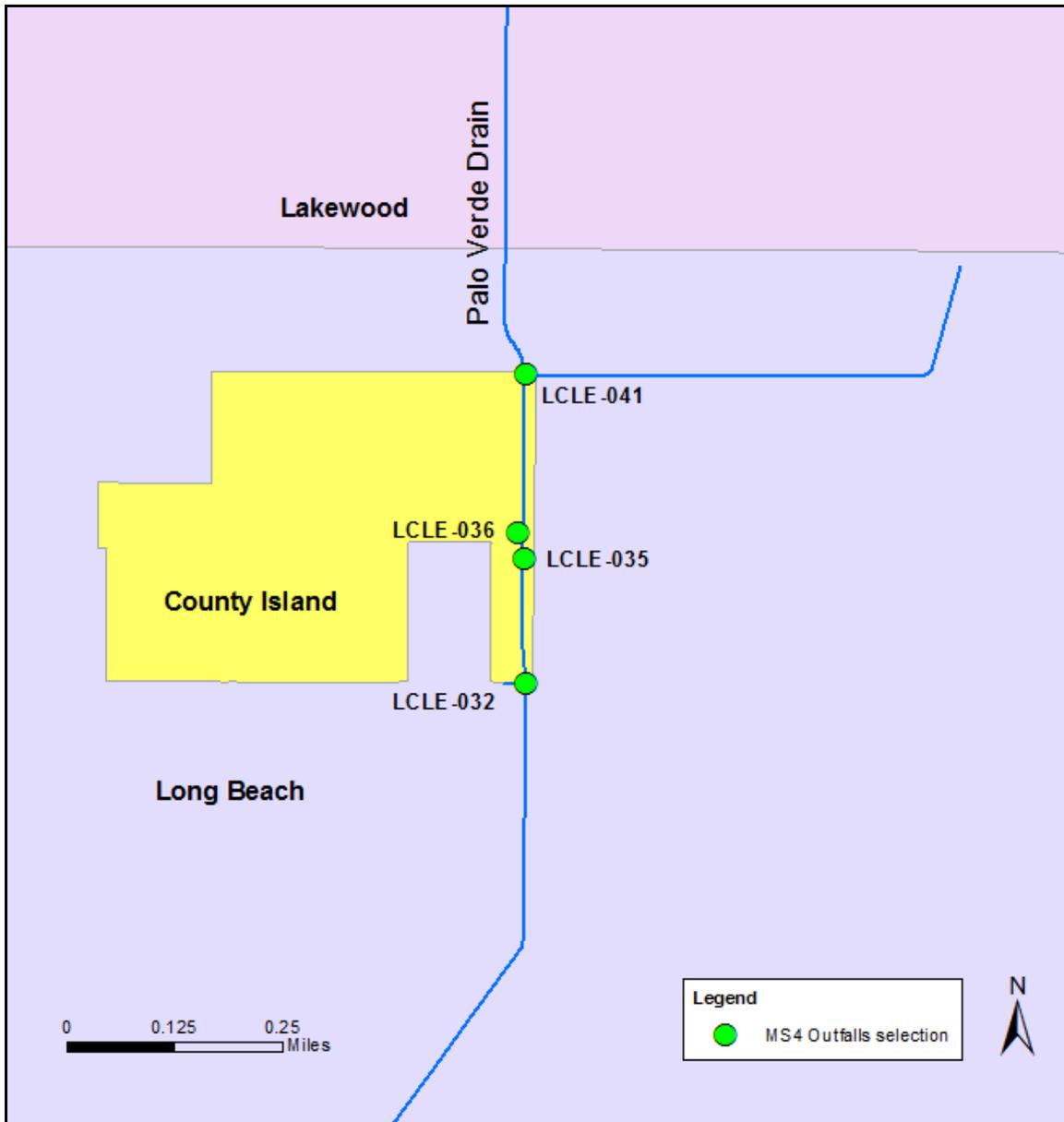


Figure 13: MS4 Outfalls in the AB/LCC WMA Jurisdiction

**Table 6: AB/LCC Group's Outfall Description and Photo**

Outfall ID Number	Outfall Dimensions	Picture	Screening #1 (April 7, 2014)	Screening #2 (April 17, 2014)
LCLE-032	27 inch Circular Concrete Pipe		No Flow	No Flow
LCLE-035	35 inch x 22 inch Arch Corrugated Metal Pipe Drain		No Flow	No Flow
LCLE-036	56 inch Circular Concrete Pipe		No Flow	Trickle
LCLE-041	Two 72 x 47 inch Rectangular Concrete Outfalls		No Flow	No Flow

## **6.3 APPROACH**

On April 7, 2014 a preliminary field screening of the AB/LCC Group's outfalls was conducted. a subsequent screening was conducted on April 17<sup>th</sup> . The following methodology is used to meet the objectives of non-stormwater based monitoring program. For the purpose of this CIMP, the AB/LCC Group is screening all outfalls in its jurisdiction. Significant discharge is characterized as any flow visually noted as larger than a "garden hose" during visual observation.

### **6.3.1 Inventory Outfalls**

The AB/LCC Group has conducted an outfall inventory based on channel as-builts and available GIS databases. The inventory noted all outfalls greater than 12 inches in diameter. In early 2014, the outfalls were verified in a field visit. Within the AB/LCC Group's jurisdiction there are 4 outfalls (Table 6).

### **6.3.2 Field Screening of Outfalls**

The AB/LCC has conducted two field screenings of the outfalls within its jurisdiction. The field screening program consists of observing each outfall 3 times. The outfalls are visited at a minimum of three days after a rain event. The screenings are conducted during normal business hours. During the screening, the AB/LCC Group completes the Outfall Screening Form (Appendix B) and appropriate photos are taken. Each screening visually documents whether there is flow or if there is no flow leaving the outfalls.

### **6.3.3 Determination of Further Assessment**

After 3 screenings are conducted, the AB/LCC Group will determine which outfalls require no further assessment. No further assessment is determined if after 3 screenings, 2 of the screenings show the outfalls:

- do not have flow
- do not have known significant non-stormwater discharge
- observed discharges were determined to be exempt

### **6.3.4 Prioritization Schedule**

If any of the outfalls exhibit significant non-stormwater discharge, the AB/LCC Group will prioritize the outfalls for further source investigations. As all of the outfalls discharge to the same waterbody, prioritization will identify the outfalls with the highest visually observed flow to be investigated first. The schedule will ensure that 25% of the outfalls with significant non-stormwater discharges will be investigated by December 28, 2015 and 100% of outfalls with significant non-stormwater discharges will be completed by December 28, 2017.

### **6.3.5 Non-Stormwater Source Identification**

If any outfalls are determined to have significant non-stormwater discharges a source investigation will be conducted including:

- following the dry weather flows upstream into the conveyance system until source is found or it is determined discharge is coming from a jurisdiction outside of the AB/LCC Group
- research if the flows are NPDES permitted, categorically exempt or natural flows
- field inspect the drain for Illicit Connections/Illicit Discharges and eliminate the source
- reviewing land use and City jurisdiction information

### **6.3.6 Monitor**

If outfalls with significant non-stormwater discharge remain unaddressed after a source investigation, monitoring will be done to meet the following objectives:

- Determine whether the discharge is in compliance with applicable non-stormwater WQBELs
- Determine whether the quality of the discharge exceeds non-stormwater action levels described in Attachment G of the Permit
- Determine whether the discharge causes or contributes to the exceedance of Receiving Water Limitations.

The AB/LCC Group would conduct the non-stormwater outfall monitoring twice per year. These dry weather events would be coordinated with downstream LCC Metals monitoring events to determine whether the non-stormwater discharges are causing or contributing to an observed exceedance of water quality objectives in the receiving water.

### **6.3.7 Reassessment**

Monitoring under the non-stormwater program will cease if monitoring data shows that discharges do not exceed respective water quality standards for TMDL or 303(d) constituents. Updates to the non-stormwater monitoring program will be included in 2017 Annual Report or earlier if changes in the program are determined to be needed

## **Section 7. New/Redevelopment BMP Effectiveness Tracking System**

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### **7.1 OVERVIEW**

The County has developed mechanisms for tracking new development/re-development projects that have been conditioned for post-construction BMPs pursuant to Section VI.D.7 of the Permit. Additionally, mechanisms have been developed for tracking the effectiveness of BMPs pursuant to MS4 Permit Attachment E.X. The tracked information includes:

#### General Information

- Project Name and Developer Name
- Project Location and Map
- Documentation of issuance of requirements to the developer
- Date of Certification of Occupancy

#### On-Site BMP Sizing Information

- 85<sup>th</sup> percentile storm event (inches per 24 hours)
- 95<sup>th</sup> percentile storm event (inches per 24 hours)
- Project design storm (inches per 24 hours)
- Project design volume (gallons or millions of gallons per day)
- Percent of design storm volume to be retained on site
- Other design criteria required to meet hydromodification requirements for projects that directly drain to natural water bodies
- One-year, one-hour storm intensity as depicted on the most recently issued isohyetal map published by the Los Angeles County Hydrologist for flow-through BMPs

#### Off-Site BMP Information

- Location and maps of off-site mitigation, groundwater replenishment, or retrofit sites
- Design volume for water quality mitigation treatment BMPs
- Percent of design storm volume to be infiltrated at an off-site mitigation or groundwater replenishment project site
- Percent of design storm volume to be retained or treated with biofiltration at an off-site retrofit project

## **Section 8. Regional Studies**

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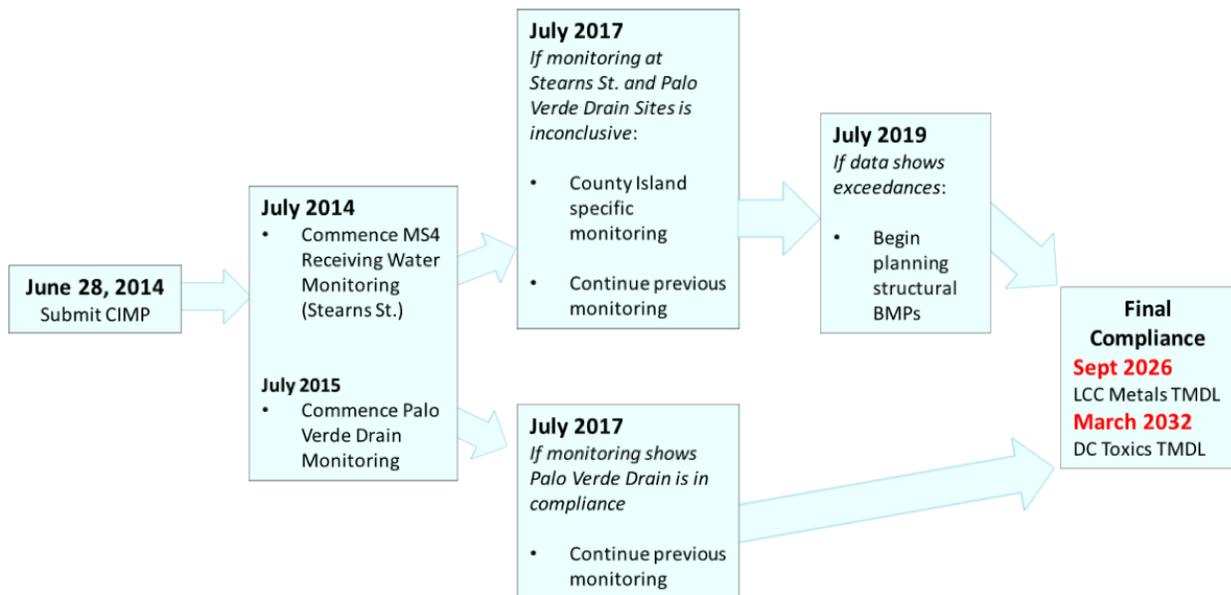
### **8.1 OVERVIEW**

The LACFCD will continue to participate in the Regional Watershed Monitoring Program (Biosassessment Program) being managed by the Southern California Stormwater Monitoring Coalition (SMC). The LACFCD will contribute necessary resources to implement the bioassessment monitoring requirement of the MS4 permit on behalf of all permittees in Los Angeles County during the current permit cycle. Initiated in 2008, the SMC's Regional Bioassessment Program is designed to run over a five-year cycle. Monitoring under the first cycle concluded in 2013, with reporting of findings and additional special studies planned to occur in 2014. SMC, including LACFCD, is currently working on designing the bioassessment monitoring program for the next five-year cycle, which is scheduled to run from 2015 to 2019.

## Section 9. Optional Source Identification: County Island

### 9.1 OVERVIEW

The County Island’s stormwater quality will be primarily indicated based on results at the Palo Verde Drain TMDL site. The County plans to implement this CIMP per the schedule presented in Figure 14. This schedule is dependent upon approval of the AB/LCC and the LCCWG’s CIMPs by the LARWQCB.



**Figure 14: County Island Specific Monitoring Approach**

If after two years of monitoring at the Palo Verde Drain Site, monitoring results show exceedances for Category 1 or Category 2 pollutants, the AB/LCC Group will implement a monitoring approach specific to the County Island. If necessary, details of this approach will be submitted to the LARWQCB prior to implementation. Details on the implementation of Best Management Practices can be found in the AB/LCC Group’s WMP.

## Section 10. Monitoring Program Overview

### 10.1 OVERVIEW

The AB/LCC will utilize existing monitoring efforts in the AB/LCC Watershed Management Area (WMA) and proposes additional efforts to meet the objectives of the Permit. Additionally, this CIMP maximizes coordination opportunities with other CIMPs in the AB/LCC WMA. The Permit requires that implementation of the CIMP begins 90 days after approval from the LARWQCB. It should be noted that implementation of this CIMP has already commenced with the Non-Stormwater Outfall Monitoring Program.

Table 7 summarizes the monitoring efforts that will in which the AB/LCC Group is implementing or participating in. Additionally, Figure 15 identifies all proposed monitoring locations in the CIMP. It should be noted that there are additional Greater Harbors RMC (DC Toxics TMDL) sites outside of the limits of this map.

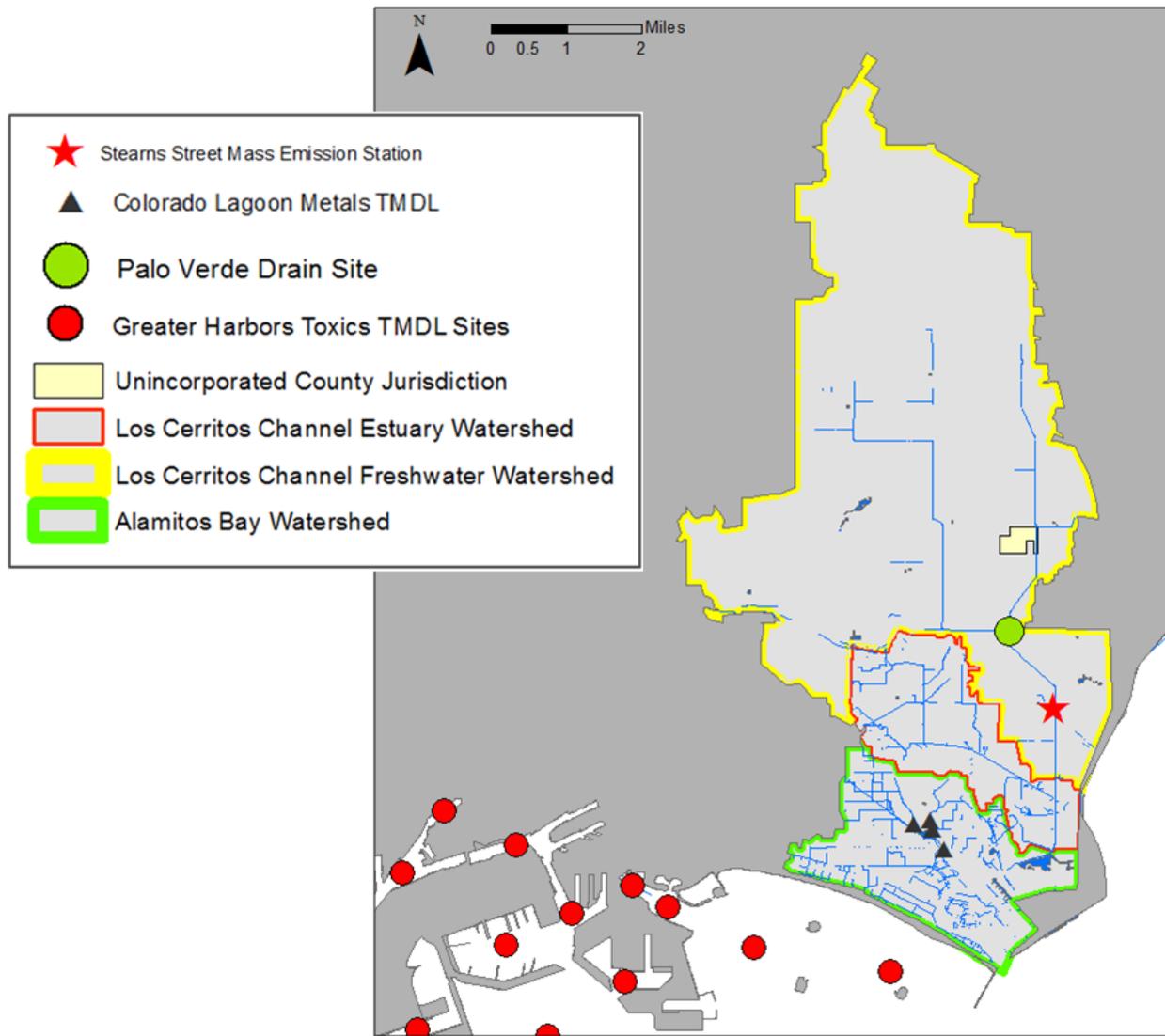


Figure 15: AB/LCC Group's Monitoring Locations

**Table 7: Summary of Nutrient and Toxics TMDL Sampling.**

<b>Monitoring Type</b>	<b>Locations</b>	<b>Additional Information</b>
<b><i>Permit Monitoring Program Elements:</i></b>		
Receiving Water Monitoring	Stearns Street Mass Emission Site	<i>See Coordinated Integrated Monitoring Plan for the Los Cerritos Channel Watershed Monitoring Group</i>
Stormwater Outfall Monitoring	Palo Verde Drain Site	<i>See Coordinated Integrated Monitoring Plan for the Los Cerritos Channel Watershed Monitoring Group</i>
Non-Stormwater Outfall Monitoring Program	TBD	See Section 6 of this CIMP
<b><i>Los Cerritos Metals TMDL</i></b>	Palo Verde Drain Site	<i>See Coordinated Integrated Monitoring Plan for the Los Cerritos Channel Watershed Monitoring Group</i>
<b><i>Dominguez Channel Toxics TMDL</i></b>	East San Pedro Bay Sites	<i>See the Coordinated Compliance Monitoring and Reporting Plan, Incorporating Quality Assurance Project Plan Components, Greater Los Angeles and Long Beach Harbor Waters submitted to the LARWQCB on February 25, 2014.</i>
<b><i>Colorado Lagoon Metals TMDL</i></b>	Colorado Lagoon and Marine Stadium	<i>See Final Colorado Lagoon TMDL Monitoring Plan (CLTMP) dated December 17, 2012</i>

# Section 11. Reporting

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## 11.1 MONITORING REPORTS

Monitoring results for the AB/LCC Group's CIMP will be reported semi-annually to the LARWCB. On December 15<sup>th</sup> of each year an annual report will be submitted to the LARWCQB summarizing the monitoring through June 30<sup>th</sup>.

As outlined in Part XVI.A of the Monitoring and Reporting Plan (MRP), the annual reporting process is intended to provide the LARWQCB with summary information to allow for the assessment of the Permittee's:

- Participation in one or more Watershed Management Programs.
- Impact of each Permittee(s) stormwater and NSW discharges on the receiving water.
- Each Permittee's compliance with Receiving Water Limitations (RWLs), numeric WQBELs, and NSW action levels.
- The effectiveness of each Permittee(s) control measures in reducing discharges of pollutants from the MS4 to receiving waters.
- Whether the quality of MS4 discharges and the health of receiving waters is improving, staying the same, or declining as a result of watershed management program efforts, and/or TMDL implementation measures, or other minimum control measures (MCMs).
- Whether changes in water quality can be attributed to pollutant controls imposed on new development, re-development, or retrofit projects.
- The Municipal Action Level (MAL) Assessment Report and identification of those subwatersheds with running average of twenty percent or greater of exceedance of the MALs (per page G-17 of Attachment G of the permit). minimum the following components:

The AB/LCC group will work collaboratively with the LCCWG on reporting.

## Section 12. References

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Los Angeles Regional Water Quality Control Board, “Final Waste Discharge Requirements for Municipal Separate Storm Sewer System (MS4) Discharges within the Coastal Watersheds of Los Angeles County, Except Those Discharges Originating from the City of Long Beach MS4 (posted December 5, 2012)”. Final Order R4-2012-0175, [http://www.waterboards.ca.gov/losangeles/water\\_issues/programs/stormwater/municipal/index.shtml](http://www.waterboards.ca.gov/losangeles/water_issues/programs/stormwater/municipal/index.shtml) (November 2013)

State of California Water Resources Control Board. “2010 Integrated Report (Clean Water Act Section 303(d) List” April 2010, [http://www.waterboards.ca.gov/water\\_issues/programs/tmdl/integrated2010.shtml](http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml). (January 2014)

Los Angeles Regional Water Quality Control Board, “Total Maximum Daily Load for Toxic Pollutants in Dominguez Channel and Greater Los Angeles and Long Beach Harbor Waters”. Resolution No. R11-008, Effective Date: March 23, 2012, [http://www.waterboards.ca.gov/losangeles/board\\_decisions/basin\\_plan\\_amendments/technical\\_documents/bpa\\_66\\_R11-008\\_td.shtml](http://www.waterboards.ca.gov/losangeles/board_decisions/basin_plan_amendments/technical_documents/bpa_66_R11-008_td.shtml) (June 2013)

Anchor QEA, L.P., “Coordinated Compliance, Monitoring, and Reporting Plan Incorporating Quality Assurance Project Plan Components” June, 2013, [http://www.waterboards.ca.gov/losangeles/board\\_decisions/basin\\_plan\\_amendments/technical\\_documents/66\\_New/09232013/1aDraftCCMRP62413.pdf](http://www.waterboards.ca.gov/losangeles/board_decisions/basin_plan_amendments/technical_documents/66_New/09232013/1aDraftCCMRP62413.pdf) (January 2014)

United States Environmental Protection Agency, “Los Cerritos Channel Total Maximum Daily Loads for Metals”. March 2010

Los Angeles Regional Water Quality Control Board, “Total Maximum Daily Load for Organochlorine (OC) Pesticides, Polychlorinated Biphenyls (PCBs), Sediment Toxicity, Polycyclic Aromatic Hydrocarbons (PAHs), and Metals for Colorado Lagoon”. Resolution No. R09-05, Adopted Date: October 1, 2009, [http://www.waterboards.ca.gov/losangeles/board\\_decisions/basin\\_plan\\_amendments/technical\\_documents/bpa\\_65\\_R09-005\\_td.shtml](http://www.waterboards.ca.gov/losangeles/board_decisions/basin_plan_amendments/technical_documents/bpa_65_R09-005_td.shtml) (January 2014)

Kinnetic Laboratories, Inc., “Final Colorado Lagoon TMDL Monitoring Plan (CLTMP) Colorado Lagoon Organochlorine Pesticides, PCBs, Sediment Toxicity, PAHs, and Metals TMDL” December, 2012

Los Cerritos Channel Watershed Group, “Coordinated Integrated Monitoring Plan for the Los Cerritos Channel Watershed Monitoring Group” June 2014

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# **APPENDIX A: LACFCD Background Information**

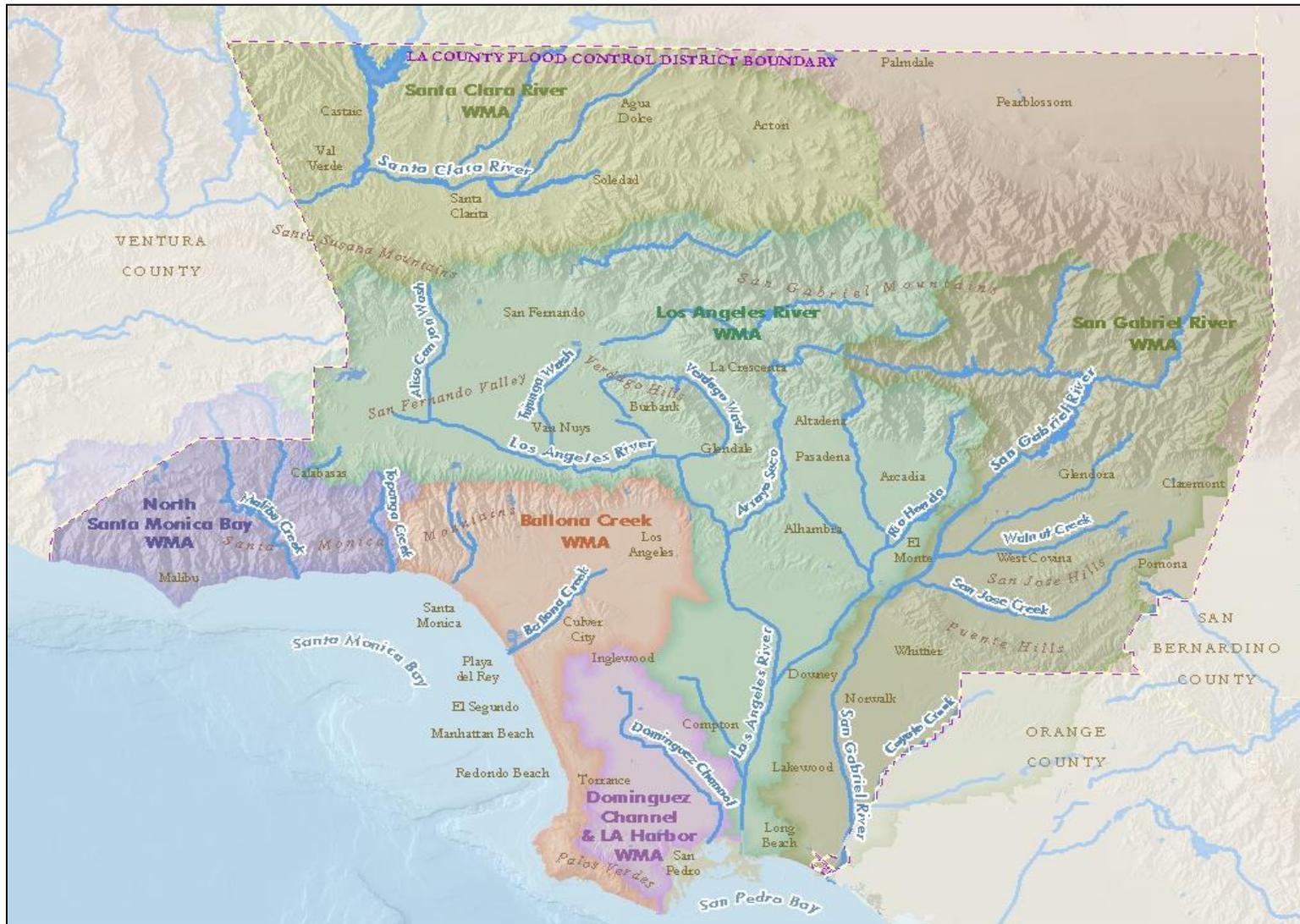
In 1915, the Los Angeles County Flood Control Act was adopted by the California State Legislature after a disastrous regional flood took a heavy toll on lives and property. The act established the LACFCD and empowered it to manage flood risk and conserve stormwater for groundwater recharge. In coordination with the United States Army Corps of Engineers the LACFCD developed and constructed a comprehensive system that provides for the regulation and control of flood waters through the use of reservoirs and flood channels. The system also controls debris, protects existing vegetal covers, collects surface storm water from streets, and replenishes groundwater with storm water and imported and recycled waters. The LACFCD covers the 2,753 square-mile portion of Los Angeles County south of the east-west projection of Avenue S, excluding Catalina Island. It is a special district governed by the County of Los Angeles Board of Supervisors, and its functions are carried out by the Los Angeles County Department of Public Works. The LACFCD service area is shown in **Figure A-1**.

By statute, the LACFCD has limited powers and purposes, which places constraints on the types of projects and activities which the LACFCD may fund. Unlike cities and counties, the LACFCD does not own or operate any municipal sanitary sewer systems, public streets, roads, or highways. The LACFCD operates and maintains storm drains and other appurtenant drainage infrastructure within its service area. The LACFCD has no planning, zoning, development permitting, or other land use authority within its service area. The permittees that have such land use authority are responsible under the Permit for inspecting and controlling pollutants from industrial and commercial facilities, development projects, and development construction sites. (Permit, Part II.E, p. 17.)

The MS4 Permit language clarifies the unique role of the LACFCD in storm water management programs: “[g]iven the LACFCD’s limited land use authority, it is appropriate for the LACFCD to have a separate and uniquely-tailored storm water management program. Accordingly, the storm water management program minimum control measures imposed on the LACFCD in Part VI.D of this Order differ in some ways from the minimum control measures imposed on other Permittees. Namely, aside from its own properties and facilities, the LACFCD is not subject to the Industrial/Commercial Facilities Program, the Planning and Land Development Program, and the Development Construction Program. However, as a discharger of storm and non-storm water, the LACFCD remains subject to the Public Information and Participation Program and the Illicit Connections and Illicit Discharges Elimination Program. Further, as the owner and operator of certain properties, facilities and infrastructure, the LACFCD remains subject to requirements of a Public Agency Activities Program.” (Permit, Part II.F, p. 18.)

Consistent with the role and responsibilities of the LACFCD under the Permit, the WMPs and CIMP reflect the opportunities that are available for the LACFCD to collaborate with permittees having land use authority over the subject watershed area. In some instances, the opportunities are minimal, however the LACFCD remains responsible for compliance with certain aspects of the MS4 permit as discussed above.

During the development of the CIMP, LACFCD infrastructure was evaluated for monitoring opportunities. The LACFCD will be collaborating with the groups for all of the monitoring.



**Figure A-1 Los Angeles County Flood Control District Service Area**

# **APPENDIX B: Non-Stormwater Outfall Screening Form**

## NON-STORMWATER OUTFALL INSPECTION FORM

Name of Inspector: \_\_\_\_\_ Date: \_\_\_\_\_ [dry-weather months]  
 Time: \_\_\_\_\_  
 Outfall ID: [alpha-numeric] Previous Inspection Date(s): \_\_\_\_\_  
 Name of Receiving Water Body: \_\_\_\_\_

Channel Stationing: \_\_\_\_\_ Outfall Long./Lat.: \_\_\_\_\_

Narrative Description of Location: [nearest cross streets, whether outlet is on east or west side of channel, notable landmarks nearby, etc.]

Diversion Structures Upstream or Downstream:

Outfall Dimensions:

Photo IDs: [take photos of outfall and downstream receiving water]

### Discharge Characteristics:

#### Observed Flow Size:

- No Flow
- Trickle
- Garden Hose
- Fire Hydrant

#### Estimate of Flow Rate:

\_\_\_\_\_

#### Water Quality Meter:

- pH
- Temperature
- DO
- Electrical Conductivity

### Odor:

- Yes
- No

Description:

### Color: [Recommended to use Color Wheel]

- None
- Yellow
- Brown
- White
- Gray
- Other: \_\_\_\_\_

### Clarity:

- Clear
- Slightly Cloudy
- Opaque
- Other: \_\_\_\_\_

### Receiving Water Characteristics:

#### Conveyance:

- Concrete Channel
- Trapezoidal
- Soft Bottom Channel
- Armored Sides
- Natural Creek
- Pipe or Box

#### Low Flow Channel:

- Yes
- No

#### Water Flow:

- Dry
- Ponding
- Flowing
- Tidal

### Weather:

- Sunny       Partly Cloudy       Overcast       Fog

### Site Information:

- Flap Gate                       Yes     No  
 In Street                       Yes     No  
 Parking Close By             Yes     No  
 Safe to Collect Samples     Yes     No    If no, why not?  
 Traffic Control Required     Yes     No

How is the outfall accessed? [adder, manhole, etc. and if not accessible, describe why and provide suggestions on alternate access points, if any.]

### Source ID:

Known:     Yes     No    ID, if Known:

- IC/ID     Conditionally Exempt Essential     Conditionally Exempt Non-Essential     Multiple Sources     Upstream Source

### Comments: